



## DEPARTMENT OF TRANSPORTATION

### Federal Aviation Administration

#### 14 CFR Part 39

[Docket No. FAA-2023-0439; Project Identifier MCAI-2022-01263-T; Amendment 39-22449; AD 2023-11-04]

RIN 2120-AA64

#### Airworthiness Directives; Bombardier, Inc., Airplanes

**AGENCY:** Federal Aviation Administration (FAA), DOT.

**ACTION:** Final rule.

**SUMMARY:** The FAA is adopting a new airworthiness directive (AD) for certain Bombardier, Inc., Model BD-100-1A10 airplanes. This AD was prompted by a report that a design deficiency was discovered which could allow a no-back pawl to be incorrectly installed in a horizontal stabilizer trim actuator (HSTA). This AD requires a check for part number and serial numbers of the HSTA, and if necessary, inspection of the no-back pawl installation, and corrective action. The FAA is issuing this AD to address the unsafe condition on these products.

**DATES:** This AD is effective [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

The Director of the Federal Register approved the incorporation by reference of certain publications listed in this AD as of [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

#### ADDRESSES:

*AD Docket:* You may examine the AD docket at [regulations.gov](https://www.regulations.gov) under Docket No.

FAA-2023-0439; or in person at Docket Operations between 9 a.m. and 5 p.m., Monday

through Friday, except Federal holidays. The AD docket contains this final rule, the mandatory continuing airworthiness information (MCAI), any comments received, and other information. The address for Docket Operations is U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE, Washington, DC 20590.

*Material Incorporated by Reference:*

- For service information identified in this final rule, contact Bombardier Business Aircraft Customer Response Center, 400 Côte-Vertu Road West, Dorval, Québec H4S 1Y9, Canada; telephone 514-855-2999; email [ac.yul@aero.bombardier.com](mailto:ac.yul@aero.bombardier.com); website [bombardier.com](http://bombardier.com).
- You may view this service information at the FAA, Airworthiness Products Section, Operational Safety Branch, 2200 South 216th St., Des Moines, WA. For information on the availability of this material at the FAA, call 206-231-3195. It is also available at [regulations.gov](http://regulations.gov) under Docket No. FAA-2023-0439.

**FOR FURTHER INFORMATION CONTACT:** Chirayu Gupta, Aviation Safety Engineer, FAA, 1600 Stewart Avenue, Suite 410, Westbury, NY 11590; telephone 516-228-7300; email [9-avs-nyaco-cos@faa.gov](mailto:9-avs-nyaco-cos@faa.gov).

**SUPPLEMENTARY INFORMATION:**

**Background**

The FAA issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 by adding an AD that would apply to certain Bombardier, Inc., Model BD-100-1A10 airplanes. The NPRM published in the *Federal Register* on March 24, 2023 (88 FR 17748). The NPRM was prompted by AD CF-2022-55, dated September 21, 2022, issued by Transport Canada, which is the aviation authority for Canada (referred to after this as the MCAI). The MCAI states that during an unscheduled inspection, a design deficiency was discovered which could allow a no-back pawl to be incorrectly installed in an HSTA.

The no-back mechanism is a primary means to prevent back driving of the HSTA, and the motor brake assemblies (MBAs) are the secondary means. If this condition is not corrected, a non-functioning no-back mechanism in combination with loss of, or degraded HSTA MBA braking capability, could lead to a loss of control of the airplane. The MCAI also states that as a mitigating action, Transport Canada AD CF-2019-23, dated June 18, 2019, was issued to mandate a software upgrade for the horizontal stabilizer trim electronic control unit to verify the MBA for braking capability during the power up test on certain Bombardier, Inc., Model BD-100-1A10 airplanes. Transport Canada AD CF-2019-23 corresponds to FAA AD 2019-15-04, Amendment 39-19697 (84 FR 38862, August 8, 2019) (AD 2019-15-04).

In the NPRM, the FAA proposed to require a check for part number and serial numbers of the HSTA, and if necessary, inspection of the no-back pawl installation, and corrective action. The FAA is issuing this AD to address the unsafe condition on these products.

You may examine the MCAI in the AD docket at [regulations.gov](https://www.regulations.gov) under Docket No. FAA-2023-0439.

## **Discussion of Final Airworthiness Directive**

### **Comments**

The FAA received comments from an individual who supported the SNPRM/NPRM without change.

### **Additional Changes to this AD**

The FAA has revised paragraph (h) of this AD to clarify the parts installation prohibition applies only to any HSTA with P/N C47100-003 or P/ N C47100-004 that does not have either the suffix -K following the serial number or a modification plate showing “SB C47100-27-02” or “SB C47100-27-03.” In the NPRM, the FAA had

inadvertently stated that installation of an HSTA with a modification plate showing “SB C47100-27-02” or “SB C47100-27-03” was prohibited.

## **Conclusion**

This product has been approved by the aviation authority of another country and is approved for operation in the United States. Pursuant to the FAA’s bilateral agreement with this State of Design Authority, it has notified the FAA of the unsafe condition described in the MCAI referenced above. The FAA reviewed the relevant data, considered the comments received, and determined that air safety requires adopting this AD as proposed. Accordingly, the FAA is issuing this AD to address the unsafe condition on this product. Except for minor editorial change, this AD is adopted as proposed in the NPRM. None of the changes will increase the economic burden on any operator.

## **Related Service Information under 1 CFR Part 51**

The FAA reviewed Bombardier Service Bulletins 100-27-20 and 350-27-009, both Revision 01, both dated December 1, 2020. This service information specifies procedures for a check for part number and serial numbers of the HSTA, and if necessary, inspection of the no-back pawl installation and corrective action. Corrective actions include replacement of the HSTA, and a re-identification and test of the HSTA. These documents are distinct since they apply to different airplane configurations. This service information is reasonably available because the interested parties have access to it through their normal course of business or by the means identified in the ADDRESSES section.

## **Costs of Compliance**

The FAA estimates that this AD will affect 703 airplanes of U.S. registry. The FAA estimates the following costs to comply with this AD:

### Estimated costs for required actions

Labor cost	Parts cost	Cost per product	Cost on U.S. operators
Up to 2 work-hours X \$85 per hour = Up to \$170	None	Up to \$170	Up to \$119,510

The FAA estimates the following costs to do any necessary on-condition actions that would be required based on the results of any required actions. The FAA has no way of determining the number of airplanes that might need these on-condition actions:

### Estimated costs of on-condition actions

Labor cost	Parts cost	Cost per product
Up to 25 work-hours X \$85 per hour = Up to \$2,125	\$2,905	Up to \$5,030

According to the manufacturer, some or all of the costs of this AD may be covered under warranty, thereby reducing the cost impact on affected operators. The FAA does not control warranty coverage for affected operators. As a result, the FAA has included all known costs in the cost estimate.

### Authority for this Rulemaking

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, section 106, describes the authority of the FAA Administrator. Subtitle VII: Aviation Programs, describes in more detail the scope of the Agency's authority.

The FAA is issuing this rulemaking under the authority described in Subtitle VII, Part A, Subpart III, Section 44701: General requirements. Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority

because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

### **Regulatory Findings**

This AD will not have federalism implications under Executive Order 13132. This AD will not have a substantial direct effect on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify that this AD:

- (1) Is not a “significant regulatory action” under Executive Order 12866,
- (2) Will not affect intrastate aviation in Alaska, and
- (3) Will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

### **List of Subjects in 14 CFR Part 39**

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

### **The Amendment**

Accordingly, under the authority delegated to me by the Administrator, the FAA amends 14 CFR part 39 as follows:

### **PART 39 - AIRWORTHINESS DIRECTIVES**

- 1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

#### **§ 39.13 [Amended]**

- 2. The FAA amends § 39.13 by adding the following new airworthiness directive:

**2023-11-04 Bombardier, Inc.:** Amendment 39-22449; Docket No. FAA-2023-0439; Project Identifier MCAI-2022-01263-T.

#### **(a) Effective Date**

This airworthiness directive (AD) is effective [INSERT DATE 35 DAYS AFTER

DATE OF PUBLICATION IN THE FEDERAL REGISTER].

**(b) Affected ADs**

None.

**(c) Applicability**

This AD applies to Bombardier, Inc., Model BD-100-1A10 airplanes, certificated in any category, having serial number 20003 and subsequent.

**(d) Subject**

Air Transport Association (ATA) of America Code 27, Flight Controls.

**(e) Unsafe Condition**

This AD was prompted by a report that a design deficiency was discovered which could allow a no-back pawl to be incorrectly installed in a horizontal stabilizer trim actuator (HSTA). The FAA is issuing this AD to address incorrectly installed no-back pawls. The unsafe condition, if not addressed, could result in a non-functioning no-back mechanism, which, in combination with loss of or degraded HSTA motor brake assembly (MBA) braking capability, could lead to a loss of control of the airplane.

**(f) Compliance**

Comply with this AD within the compliance times specified, unless already done.

**(g) Records Check and Corrective Actions**

Within 60 months after the effective date of this AD, check the airplane maintenance records or do a visual check to determine the part and serial numbers of the HSTA.

(1) If the part number is C47100-005: No further action is required by this paragraph.

(2) If the part number is C47100-004 and the serial number ends with the suffix -K: No further action is required by this paragraph.

(3) If the serial number is listed in the table referred to in paragraph 2.B.(4) of the

Accomplishment Instructions of the applicable Bombardier service bulletin identified in figure 1 to paragraph (g)(3) of this AD: Within 60 months from the effective date of this AD, inspect the HSTA no-back mechanism pawls in accordance with paragraph 2.C. of the Accomplishment Instructions of the applicable service bulletin identified in figure 1 to paragraph (g)(3) of this AD.

(i) If one or more pawls are not correctly installed: Before further flight, replace the HSTA in accordance with paragraph 2.E. of the Accomplishment Instructions of the applicable service bulletin identified in figure 1 to paragraph (g)(3) of this AD.

(ii) If all the pawls are correctly installed, re-identify and test the HSTA, and do all applicable corrective actions, in accordance with paragraphs 2.C.(4) and 2.F. of the Accomplishment Instructions of the applicable service bulletin identified in figure 1 to paragraph (g)(3) of this AD.

**Figure 1 to paragraph (g)(3) - Applicable service information**

<b>Airplane Model</b>	<b>Applicable Bombardier Service Bulletin</b>
BD-100-1A10 (CH300 marketing)	100-27-20, Revision 01, dated December 1, 2020
BD-100-1A10 (CH 350 marketing)	350-27-009, Revision 01, dated December 1, 2020

(4) If the serial number is listed in the table referred to in paragraph 2.B.(5) of the Accomplishment Instructions of the applicable service bulletin identified in figure 1 to paragraph (g)(3) of this AD: Within 60 months from the effective date of this AD, add a modification plate to the HSTA in accordance with paragraph 2.D. of the Accomplishment Instructions of the applicable service bulletin identified in figure 1 to paragraph (g)(3) of this AD.

(5) If the records check is inconclusive, or if a visual check instead of a records check of the HSTA was accomplished: Within 60 months from the effective date of this AD, verify the part numbers and serial numbers of the HSTA, and verify the modification

plate, in accordance with paragraph 2.B. of the Accomplishment Instructions of the applicable service bulletin identified in figure 1 to paragraph (g)(3) of this AD.

(i) If the HSTA has part number (P/N) C47100-005: No further action is required by this paragraph.

(ii) If the HSTA has P/N C47100-004 and a serial number that ends with the suffix -K, or if the modification plate contains “SB C47100-27-02” or “SB C47100-27-03”: No further action is required by this paragraph.

(iii) If the serial number is listed in the table referred to in paragraph 2.B.(4) of the Accomplishment Instructions of the applicable service bulletin identified in figure 1 to paragraph (g)(3) of this AD: Within 60 months from the effective date of this AD, inspect the HSTA no-back mechanism pawls in accordance with paragraph 2.C. of the Accomplishment Instructions of the applicable service bulletin identified in figure 1 to paragraph (g)(3) of this AD.

(A) If one or more pawls are not correctly installed, before further flight, replace the HSTA in accordance with Paragraph 2.E. of the Accomplishment Instructions of the applicable service bulletin identified in figure 1 to paragraph (g)(3) of this AD.

(B) If all the pawls are correctly installed, re-identify and test the HSTA, and do all applicable corrective actions, in accordance with paragraphs 2.C.(4) and 2.F. of the Accomplishment Instructions of the applicable service bulletin identified in figure 1 to paragraph (g)(3) of this AD.

(iv) If the serial number is listed in the table referred to in paragraph 2.B.(5) of the Accomplishment Instructions of the applicable service bulletin identified in figure 1 to paragraph (g)(3) of this AD: Within 60 months from the effective date of this AD, add a modification plate to the HSTA in accordance with paragraph 2.D. of the Accomplishment Instructions of the applicable service bulletin identified in figure 1 to paragraph (g)(3) of this AD.

#### **(h) Parts Installation Prohibition**

As of the effective date of this AD, no person may install an HSTA with P/N C47100-003 or P/ N C47100-004 that does not have either the suffix -K following the serial number or a modification plate showing “SB C47100-27-02” or “SB C47100-27-03” on any airplane.

#### **(i) Credit for Previous Actions**

This paragraph provides credit for actions required by paragraph (g) of this AD, if those actions were performed before the effective date of this AD using the applicable service information identified in paragraphs (i)(1) and (2) of this AD.

(1) Bombardier Service Bulletin 100-27-20, dated November 9, 2020.

(2) Bombardier Service Bulletin 350-27-009, dated November 9, 2020.

#### **(j) Additional AD Provisions**

The following provisions also apply to this AD:

(1) *Alternative Methods of Compliance (AMOCs)*: The Manager, International Validation Branch, FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19. In accordance with 14 CFR 39.19, send your request to your principal inspector or responsible Flight Standards Office, as appropriate. If sending information directly to the manager of the International Validation Branch, mail it to ATTN: Program Manager, Continuing Operational Safety, at the address identified in paragraph (k)(2) of this AD or email to: [9-avs-nyaco-cos@faa.gov](mailto:9-avs-nyaco-cos@faa.gov). If mailing information, also submit information by email. Before using any approved AMOC, notify your appropriate principal inspector, or lacking a principal inspector, the manager of the responsible Flight Standards Office.

(2) *Contacting the Manufacturer*: For any requirement in this AD to obtain instructions from a manufacturer, the instructions must be accomplished using a method approved by the Manager, International Validation Branch, FAA; or Transport Canada or

Bombardier, Inc.'s Transport Canada Design Approval Organization (DAO). If approved by the DAO, the approval must include the DAO-authorized signature.

**(k) Additional Information**

(1) Refer to Transport Canada AD CF-2022-55, dated September 21, 2022, for related information. This Transport Canada AD may be found in the AD docket at [regulations.gov](https://www.regulations.gov) under Docket No. FAA-2023-0439.

(2) For more information about this AD, contact Chirayu Gupta, Aviation Safety Engineer, FAA, 1600 Stewart Avenue, Suite 410, Westbury, NY 11590; telephone 516-228-7300; email [9-avs-nyaco-cos@faa.gov](mailto:9-avs-nyaco-cos@faa.gov).

(3) Service information identified in this AD that is not incorporated by reference is available at the addresses specified in paragraphs (1)(3) and (4) of this AD.

**(l) Material Incorporated by Reference**

(1) The Director of the Federal Register approved the incorporation by reference of the service information listed in this paragraph under 5 U.S.C. 552(a) and 1 CFR part 51.

(2) You must use this service information as applicable to do the actions required by this AD, unless this AD specifies otherwise.

(i) Bombardier Service Bulletin 100-27-20, Revision 01, dated December 1, 2020.

(ii) Bombardier Service Bulletin 350-27-009, Revision 01, dated December 1, 2020.

(3) For service information identified in this AD, contact Bombardier Business Aircraft Customer Response Center, 400 Côte-Vertu Road West, Dorval, Québec H4S 1Y9, Canada; telephone 514-855-2999; email [ac.yul@aero.bombardier.com](mailto:ac.yul@aero.bombardier.com); website [bombardier.com](https://www.bombardier.com).

(4) You may view this service information at the FAA, Airworthiness Products Section, Operational Safety Branch, 2200 South 216th St., Des Moines, WA. For information on the availability of this material at the FAA, call 206-231-3195.

(5) You may view this service information that is incorporated by reference at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, email [fr.inspection@nara.gov](mailto:fr.inspection@nara.gov), or go to: [www.archives.gov/federal-register/cfr/ibr-locations.html](http://www.archives.gov/federal-register/cfr/ibr-locations.html).

Issued on June 7, 2023.

Ross Landes, Deputy Director for Regulatory Operations,  
Compliance & Airworthiness Division,  
Aircraft Certification Service.

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